Trees.

The REAL Gen. Sherman Big Tree (Story Page 11)

Oak Wilt Disease Menaces Nation's Trees — *Noel B. Wysong*

The ABC's of 2,4-D — *L. L. Coulter*

Sept. - Oct., 1949 *The Journal of American Arboriculture* Vol. 9—No. 6

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TREES Magazine is a bi-monthly Journal published at Cleveland, Ohio, by Edward H. Scanlon, and is devoted to the furtherance of the technical and business administration of Trees (Street and Ornamental); Parks (Municipal and National); and Forests (State, National and Private), in the U. S. Scanlon Publishing Co., P. O. Box 5607, Cleveland, Ohio. Subscription by mail $2 per year; outside United States, $2.50. Advertising rates upon inquiry. Closing date for advertising copy—10th of month preceding date of issue. Unsolicited manuscripts must be accompanied by return postage.

ALONG THE WAY

With . . .
EDW. SCANLON

■ The ARBORICULTURAL SOCIETY OF SOUTH AFRICA have superseded their MIMEOGRAPHED BULLETIN with a very fine printed job titled "TREES—OF SOUTH AFRICA." A very worthwhile effort.

We hope though, the SUGGESTION OF ONE WRITER, that "THE LITTLE PLANTED CATALPA," remains in its present category. PRETTY BUT MESSY.

■ *STEVE CLOPPER came thru and BROKE THE HOT WEATHER JINX that plagued the 23rd and 24th NATIONAL SHADE TREE CONFERENCE. The Silver anniversary meeting AT BALTIMORE enjoyed PERFECT WEATHER — and for BALTIMORE IN AUGUST that's SOMETHING.*

■ HI YA, CLARE — get that LONG LEGGED SMITH'S feet off the desk and MAKE HIM READ THIS SHEET. There's something GOOD ON OAK WILT a little deeper IN SOMEWHERE. It might HIT NEBRASKA.

■ *After MANY YEARS OF LETTERS, finally came FACE TO FACE with HANK HOHMAN, KINGSVILLE NURSERY — great plantsman — sure enjoyed that JUNGLE TOUR HANK — especially the UPRIGHT SUGAR MAPLE. Don't forget MY SCIONS.*

■ DON'T LET ANYONE tell you ED HIGGINS (the new N. S. T. C. veepee) WASN'T A HOOFER before he TOOK UP TREES. In that EXHIBITION JIG at the BALTIMORE BANQUET he turned that little MISTRESS OF CEREMONIES everywhere BUT LOOSE. He may have SOME SNOW ON THE ROOF, but there's a good FIRE IN THE FURNACE.

■ *AFTER THE CONFERENCE, spent TWO DAYS IN WASH., D. C. Saw THE PRESIDENT, too. He was WALKING DOWN THE STREET and we were WALKING UP, but NOBODY STOPPED.*

■ In the RUSH GETTING OUT THE CONVENTION ISSUE I FORGOT a LINE in the ad of the FANNO SAW WORKS, CHICO, CALIF., to the effect that LOCAL SUPPLY HOUSES THRUOUT THE EAST carry FANNO SAWS. Try them out if YOU DON'T KNOW THEM.

■ *JOHN H. COYNE, CITY FORESTER OF YONKERS, certainly WANTED TO GET to the conference, literally IN THE WORST WAY. Driving to BALTIMORE he stopped FOR GAS and had the car DOOR SLAMMED ON HIS FINGERS. A portion OF ONE FINGER had TO BE AMPUTATED, but JOHN WOULDN'T LET a little thing like an ABBREVIATED PINKIE keep him away. Hope its OK NOW, JOHN.*

■ BUSINESS MUST BE GOOD in the EAST OF CLEVELAND area. At least if the SILHOUETTE MADE by BUCK WEAVER, local TREE MAN out there, means anything it must be. Was figuring on STICKING CLOSE to him at the BALTIMORE DEMONSTRATIONS in case the SUN WAS HOT and SHADE WAS NEEDED. That MAYO DIET is good chum.

■ *Will ALL OF YOU LADS who attended the MUNICIPAL SHADE TREE SECTION, Wednesday evening, at THE BALTIMORE CONFERENCE drop me A LINE and LET ME KNOW what you THOUGHT OF THE PROCEEDINGS.*

■ "JEFF" (W. L. JEFFREY, the KNOXVILLE, ILL., tree servicer, COULDN'T MAKE the conference BECAUSE OF THE TROUBLE his pet AUSTRALIAN BUDGEREEGAH (a talking bird) GOT HIM INTO. JEFF taught him to ANSWER THE PHONE, but he PRICED THE WORK SO CHEAP Jeff couldn't AFFORD THE TRIP.

■ *CYNTHIA WESTCOTT of "THE BUG BOOK" fame, TELLS US SHE is busy preparing ANOTHER GOOD BOOK for we working people. HURRY IT CYNTHIA the Bug Book is a GREAT TOOL.*

■ We have had SEVERAL SPLURGES with TREES magazine when we HAVE BEEN ABLE to put out a FAIRLY THICK ISSUE. This was due to ADEQUATE ADVERTISERS. However to MAINTAIN SUCH ISSUES we have to have YOU READERS SUPPORT THE ADVERTISERS, as well as READ THE MAG. If your SPRAY MATERIAL supplier is NOT ADVERTISING in TREES magazine, find out why, (and tell us, we can't figure it out). Also let the PRESENT ADVERTISERS know you SUPPORT THEM. We need all THESE ADVERTISERS and MANY MORE TO PAY THE PRINTER. It takes a LOT OF CABBAGE. If you THINK THE TREE FIELD needs TREES magazine GIVE US a pitch.

■ *FOUND THREE BEAUTIFUL NEW forms of trees here LAST MONTH. In a local cemetery is a PERFECT GLOBE HEAD form of EUROPEAN LINDEN (Vulgaris, I think). Also a SMALL NORWAY LIKE MAPLE that DON WYMAN of the ARNOLD ARBORETUM has tentatively identified as A. PLATANOIDES PSEUDOLATUM. The other is a FINE UPRIGHT form of SCOTCH ELM. We hope to BEGIN PROPAGATION of them this WINTER AND NEXT SPRING.*

■ MRS. GARRETT SMITH, member of the PLAINFIELD (N. J.) SHADE TREE COMMISSION has been advocating a NEW THEME IN GARDENING—"CHURCH GARDENS.' Utilizing space, NOW WASTED, around churches by MAKING IT INTO A FINE OUTDOOR meeting place thru planting. MRS. SMITH'S enthusiasm is EASILY IMPARTED to her listeners.

■ *The ROPE THROWING and SKINNING CONTESTS at the CONN. TREE PROTECTIVE ASSOCIATION summer meeting, went off VERY SMOOTHLY. Best skinner was JAMES ADLE of the BARTLETT TREE EXPERT CO.; runner-up was WALTER HISOCK, same company. The ROPE THROWING CHAMP is MIKE PAUL of the CARTER TREE SERVICE, Manchester, Conn.; runner-up was TONY MYDER, GREENWICH TREE DEPT. Attendance 200.*

■ ERNEST HIGGINS, chairman of the WESTERN SHADE TREE CONFERENCE Arboreta committee has a FINE MEETING coming off in SAN FRANCISCO early in October. A panel on "TWENTY BEST GARDEN AND STREET TREES FOR NORTHERN CALIFORNIA" will have five speakers EACH DISCUSSING FOUR TREES. The speakers: PROF. H. E. McMINN, "Four Native Trees for Wider Parkways and Larger Gardens"; JOHN AITKEN, "Four Appealing Trees for Smaller Gardens"; KEITH L. DAVEY, "Four Stately Trees of Proven Merit for Boulevards"; RAY D. HARTMAN, "Four Garden and Street Trees with Autumn Color"; WILLIAM PENN MOTT JR., "Four Smaller Trees for Narrow Parkways." WE HOPE TO HAVE these papers FOR PUBLICATION beginning with the DEC. ISSUE.

■ *Just GOT A TIP on a NEW BEAUTIFUL TREE in EUROPE. It's a GOLDEN LEAVED WEEPING BEECH. Have several leaves and THEY'RE BEAUTIFUL—will HAVE SEVERAL TREES very soon Ah! LUCKY ME, guess I MUST LIVE RIGHT.*

■ Let's hope the INTEREST THAT WAS GENERATED in the SHADE TREE SECTION at the conference does NOT DIE. Anyone who HAS WHAT HE THINKS is an OUTSTANDING TREE, from a STANDPOINT OF FORM, is invited to SEND A GOOD PICTURE in so we can TAKE A LOOK at it. Maybe SOMEONE will TAKE AN INTEREST in PROPAGATING it.

■ *If YOU MOVE, or have moved, DON'T FORGET to send us a "CHANGE OF ADDRESS."*

■ HOW ABOUT coming thru with another MESS OF QUESTIONS for the ARBORISTS CLINIC. You're NOT ALL SO SMART that a few questions can't BE SCRAPED UP.

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TREES MAGAZINE
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The Editors of TREES invite discussions, comments and all types of literary materials pertaining to trees and tree preservation from any person engaged either in the scientific advancement or commercial development of the field.

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September-October, 1949 **Journal of the National Arborist Association** Vol. 9—No. 6

EDWARD H. SCANLON, Editor
Box 5607, Cleveland, Ohio
Phone ORchard 0341

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; *a country without trees is hopeless*"

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Out on a Limb

TDA CONFERENCE NEEDED

The loss, replacement and treatment of shade and ornamental trees in America each year costs home-owners, institutions and political subdivisions, hundreds of millions of dollars. How much of this is misspent, or wasted, we have no way of knowing, but based on the meager knowledge available on the treatment of many serious, widespread tree diseases, we suspect it might be considerable.

The measly sums that are budgeted to the U. S. Department of Agriculture for shade tree research are an insult to the intelligence of every taxpayer in the land. We do not advocate higher taxes for this purpose, but certainly there are many of the "social" agencies that accomplish nothing, except to keep people stirred up, which if evaluated properly could be cut out entirely with far better results than are ever attained from their senseless spending.

The difference, of course, and the reason why these "ism" agencies get the funds can be explained by the aphorism "the squeaking wheel gets the grease." In other words they "lobby for their hobby." What's the answer? We must present the case of the Home Shade Tree Owner to the budgeteers in a forceful manner.

Our horticultural and garden organizations have been remiss in pushing the allocation of funds that rightfully should be spent in the interests of ALL the people, not merely for a screaming minority. With Dutch elm disease, Oak wilt, phloem necrosis, bleeding canker of Maple, and other diseases too numerous to mention, threatening the balance of ornamental home and civic plantings throughout the country it seems high time that firm steps be taken.

A Tree Disease Appropriation Conference is an urgent necessity and should be held this winter. The presidents of all horticultural, arboricultural and park associations and garden clubs; the heads of state experiment stations; editors of garden and horticultural trade papers should get together to plan a campaign to enlighten the public to the need for such research, and to present to the members of Congress a plan that will result in devising means for stopping the calamitous spread of many dollar-wasting tree diseases.

ARE YOU A "MAPLESYCAMOREELM" MAN?

Because there has been no clear definition of the uses to which the numerous species and varieties of trees are best adapted, we unfortunately, still have far too many "maplesycamoreelm" men planting trees in every place but the right place. To this category we can add the "Chineselmsilvermaple" throng. They are numerous—too numerous.

It would seem reasonable to expect that people dealing with any kind of tools, and in this case trees are tools, because, in many cases, an exact job is expected of the "tool," would

make a study of the many trees available and then, on the basis of elimination, select the best tree for the job. Such evaluation would certainly seem to be an elementary necessity in one of the most exacting fields of tree usage—city street trees. But, it isn't, and the proof that such is a fact, is standing for all to see on a great majority of all city streets thruout the country.

ILLINOIS JOINS NATIONAL ARBOR DAY GROUP

On July 10th Governor Adlai Stevenson of Illinois signed House Bill No. 68—"An Act to Designate the Last Friday in April as Arbor and Bird Day." This Act makes Illinois the eighth state legally to adopt the date for a National Arbor Day.

Noel B. Wysong, chairman, and the whole committee, gratefully gives all credit for the successful passage of the Act to its sponsor the Honorable Emmett McGrath, Representative of the Seventh Illinois Congressional District. The bill was written and introduced by Mr. McGrath who has been a lifelong proponent of conservation in his state. He has been instrumental in the passage of many Acts beneficial to forestry, wildlife and the conservation of natural resources. Mr. McGrath stated "This act should, in conjunction with similar acts in other states, do much to further the advancement of a sound shade tree program in Illinois. It deserves the support of every good citizen interested in trees and the cultural life of his community."

Specials

Said Tracy to his special crew,
Get going boys there's work to do,
The calls have come in left and right,
'Cause of the storm we had last night.
Bisby, boss of the special crew,
Said "shucks boss that ain't nothin' new.
We'll go right out and get those calls,
Boys climb in your overalls."
So "Moco" big and wide and strong,
Said, "Let's take plenty tools along".
We got ropes and saws and axes,
The only things we really lax is,
Paint and ladders and extra stakes,
Take two along in case one breaks.
Then Clarence, who completes the crew,
Rolled up his sleeves a notch or two.
Clarence is built close to the ground,
His muscles bulge out big and round.
He handles ladders and axes like,
He was tossing round his racing bike.
The truck was loaded in record time,
And Bisby said let's go and climb.
So away they went from call to call,
And climbed up trees both large and small.
They sawed and cut and patched up trees,
And "Swamped" the brush around their knees.
Their shirts were dark and wringing wet,
Their foreheads dripped with beads of sweat.
Yet they "Swamped" their brush and piled it neat,
And went their way each job complete.
Hanging branches, broken limbs,
All a part of nature's whims.
Each branch, each tree was cut with care.
And mended was each ragged tear.
The day slipped by and at it's end,
There weren't any trees to mend.
So the Special men on the Special crew,
Put in their day, at last were through.
Their tools aboard, the day was done
Just another day on the "Special Run".

By John J. Traudt
Milwaukee, Wis.

Cutting chains for Disston Power Chain Saws

These chains are Army surplus. Type "K" all new and packed. Any length desired. Chains for 2 ft. rail $14.00, 3 ft. rail $18.00, 4 ft. rail $22.00. Send check or money order. Immediate shipment. Money refunded if not completely satisfied.

JOHN KUNTZ
R. D. No. 1, Lambertville, N. J.

Honey Locust Selections Recommended

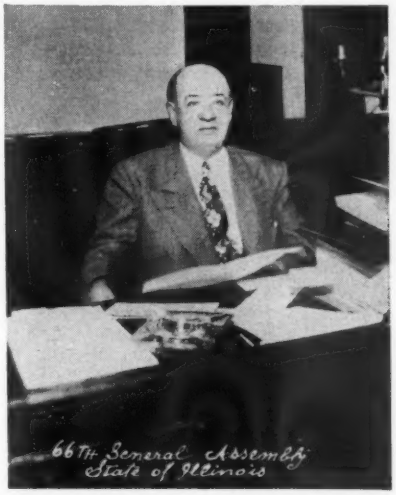
Substitutes for the American elm and native oaks as shade trees are being sought by many plantsmen because of the ravages of diseases such as oak wilt and the Dutch elm disease occurring in some sections of the country. The diseases are destroying many valuable and prized shade trees on both public and private properties in several midwestern states.

F. L. O'Rourke, Michigan State College Department of Horticulture, in a recent address to the annual meeting of the American Institute of Park Executives in Detroit, said that observations in many parts of the United States and Canada indicate that the honey locust has most of the characteristics needed for shade and lawn purposes.

The common northern honey locust has a native range extending from the Appalachians to the Great Plains and from Ontario to Texas. It thrives on a wide range of soils. Under conditions of high fertility and adequate moisture, it grows rapidly and in the same period of time may attain a height equal to that of the less desirable Chinese elm and silver maple. It is long lived. One honey locust recently cut in Dayton, Ohio, showed 327 annual rings.

Seedlings of the honey locust at certain stages produce many multiple-pointed thorns but as the tree matures, the new growth gradually becomes thornless. Completely thornless, male varieties can be produced by using budwood from the thornless male branches of the tree. Such thornless propagated trees are available from many nurseries.

One-year-old budded whips are straight stemmed, suitable for transplanting to a permanent location, and their use is recommended. Trees produced from seed are variable in characteristics and frequently produce thorny growth. Budded trees from a reputable nursery will prove more satisfactory. The young trees of the honey locust have a shallow, fibrous root system which permits easy transplanting.



The Honorable Emmett McGrath, Illinois Assembly, who successfully steered through adoption of National Arbor Day bill in Illinois.

O'Rourke points out that lawn grasses grow well beneath the light shade of the honey locust. The trees present almost no fall leaf-clean-up problem since the thin, soft leaflets decompose almost overnight leaving only the slender mid-ribs. even these mid-ribs decompose quickly and the debris left under the trees is almost negligible. Female flower producing specimens do drop a heavy crop of pods. However, male varieties, completely free of pod production, can be produced by using budwood from branches producing only male or staminate flowers.

The honey locust is tolerant of smoke, soot and other conditions often found within large cities. The open framework and tough structure of the honey locust makes it highly resistant to wind, ice and storm damage. Insect damage, so far, has been minor in midwest areas.

The honey locust offers excellent possibilities in replacing some of the more disease-susceptible shade trees in park and home plantings, O'Rourke believes.

Extension Information Service,
Michigan State College.

OAK WILT DISEASE MENACES NATION'S TREES

By Noel B. Wysong,

Forester, Cook County Forest Preserve, River Forest, Ill.

When a tree ailment appears to be restricted to some remote locality, it doesn't seem too serious—it is a different story, however, when the ailment starts spreading and, with devastating effect, invades new territory each year. Then it takes on weight and becomes an object of utmost concern Thus it has been with the oak wilt disease; when this killer of oak trees seemed to be confined to a relatively small area in Wisconsin and northeastern Iowa with an apparently negligible rate of spread, it aroused little more than academic interest with most tree men despite warnings by scientists that it was capable of causing great destruction.

Now it appears that this disease, since it was first discovered some twenty years ago, has been spreading a little, year by year, and gaining momentum with each passing season. In the last few years it definitely has dropped all semblance of dormancy or quiescence, emerging as a deadly, growing killer whose full potentialities are a matter of conjecture.

Its known range now extends through the southern half of Wisconsin, southeastern Minnesota, the eastern two-thirds of Iowa, and northern Illinois extending from Kankakee southwesterly toward St. Louis. It has been found in St. Louis, and very recently has been reported from the Lake-of-the-Ozarks region in Missouri, and from Gary, Indiana. The disease appears to be spreading much more rapidly now than it did a few years ago; the case found at Gary represents an advance of nearly fifty miles from any tree known to be infected in 1948. The first case of oak wilt in Illinois was found in Rockford in 1942; in the intervening seven years the disease apparently has traveled eastward at least 100 miles, and in 1948 it was discovered in Murphysboro, 300 miles south of Rockford. Where it will appear next year, or the year thereafter, is anybody's guess.

The technical aspects of the oak wilt disease have been described in various articles: "Oak Wilt—Its significance, symptoms and cause," by B. W. Henry, C. S. Moses, C. Audrey Richards and A. J. Riker, in Phytopathology 34: 636-647, 1944; "Oak Wilt—A serious disease in Iowa," by S. M. Dietz and Roy A. Young, Iowa State College Bulletin P. 91, 1948; and "Studies on oak wilt, caused by *Chalara quercina,*" by Roy A. Young, in Phytopathology 39: 425-441, 1949. The Twentieth and the Twenty-fourth proceedings of the National Shade Tree Conference carry reports on oak wilt presented respectively by Dr. A. J. Riker of the University of Wisconsin, and Drs. George L. McNew, Roy A. Young and Paul H. Schuldt of Iowa State College.

These scientists and other plant pathologists tell us the disease is caused by the fungus *Chalara quercina,* and that all the native oaks probably are susceptible to attack. At least, of some 28 oak species tested by Dr. S. M. Dietz of Iowa State College, not one was found to be immune. It is not known how the disease is transmitted from an infected to a healthy tree, nor have any satisfactory control measures yet been devised. Dr. Roy A. Young carefully states, "No red oak has ever been observed to recover from the disease. Pruning of infected branches was suggested as a means of saving white oaks with localized symptoms, although results were not perfect."

Curative treatments attempted to date on infected trees have not been effective. In the light of present knowledge, it appears practically certain that an infected tree, in either the red or the white oak group, is doomed.

The first noticeable evidence of the disease is the appearance of wilting, off-color foliage on one or several branches usually near the top of the tree. In the red oak group, the leaves tend to curl up or cup upward slightly, become dull in color and if held up against the light, have a muddy appearance. Apparently typically, the base of the petiole darkens in color. These symptoms appear progressively downward throughout the tree. The leaves turn bronze to brown, complete defoliation occurring within two or three weeks. The leaves may fall at any stage; in the Chicago area it has been noted that most of the leaves drop while still in the muddy-green color phase, comparatively few remaining attached to the tree and passing through the later color stages. No leaves observed have, in any stage, been flaccid to the touch; rather, they seem to be abnormally stiff and hardened. On the first wilting red oak found in 1949 in the Chicago area, early foliage was sparse and light green in color; the upper one-third of the tree was suggestive of chlorosis. This possibly is characteristic of trees infected late in the preceding autumn. In the white oak group, first signs of the disease appear in the upper part of the crown and progress downward as in the red oaks. The leaves become muddy in appearance, and may pass through the bronze and brown stages. Field observations indicate that usually the foliage turns light brown or tan in color in the Chicago area. They tend to remain attached to the branches longer than do the leaves of infected red oaks. In most of the articles written on oak wilt, it has been stated that the disease progresses more slowly in the white oak group than in the red oaks; that infected trees in the red oak group may die within 30 to 60 days after the first symptoms appear, while white oaks may live for several years. However, bur oaks in the neighborhood of Chicago have been observed to lose all their leaves in a single season; in only two bur oaks did progress of the disease, as gauged by wilting of the foliage, seem noticeably slower than in infected red oaks.

In a recent trip through the wilt-infected areas of Wisconsin, Iowa and Illinois, it was noted that the disease apparently is spreading more rapidly in Illinois, than in Wisconsin. In Wisconsin, a forest tract of 50 acres, for example, might contain only one small area of wilting trees; in Iowa, a tract of similar size often was found to contain several areas of dying or dead oaks, and generally the areas were quite large. In one Illinois woodland of approximately 30 acres, infection developed in three separate areas during the summer of 1949. No wilting oaks were reported from this tract last year. In another Illinois forest area of about 160 acres, wilting trees were found during the past summer in five distinctly separate locations.

From a single infected tree in an oak stand, the disease seems to spread in a more or less circular pattern to adjacent trees, a few to a considerable number dying each year. Field observations indicate that healthy oaks immediately adjacent to diseased trees are almost certain to become infected; at the same time, the disease may appear in an oak a few hundred feet to several miles distant from any wilt-infected tree. It seems probable that a single wilting tree may serve as a source of infection to oaks both in the immediate vicinity and in distant areas.

No tree-conscious person, traveling through the wilt-infected region, could avoid being impressed by the damage the disease has caused. In Madison, Wisconsin, there are wilting oaks in many of the residential areas; dead and dying trees dot the forests of the University Arboretum. In a suburban district just outside Madison, a fine home was recently constructed, the location chosen because of surrounding oak trees, according to the owner. These trees now are dying, and in the words of the owner, "Money would be no object if the trees could be saved." In Devil's Lake State Park, some 30 miles northwest of Mad-

Dead and dying oak trees border the highway near Coloma, Wis.

Red oaks killed by the oak wilt disease in Fort Dodge, Iowa.
(Photos courtesy the Author).

ison, seven study plots had been established in oak stands, the plots varying in size from one-eighth to one-fourth acre. The first plot was staked in 1945. Since that time, according to Dr. J. E. Kuntz of the University of Wisconsin, 100 trees in the plots have died of oak wilt. On the Nekoosa-Edwards Paper Company property near Wisconsin Rapids there are wilting and dying oaks of all age groups, from seedlings to mature trees. In many areas, sapling and pole size oaks, dead of wilt, stand so thickly that the tracts are suggestive of old fire burns. Throughout Wisconsin there are tourist cabin camps and motels, usually located in oak groves. In many cases these trees are dying. The loss to the operators of these business establishments, even if nothing more than the cost of tree removal is considered, will be staggering. From Madison north to Wisconsin Rapids, and southwest to Dubuque, Iowa, there are few forests or farm woodlots that do not contain one or more areas of wilting oaks. The discolored foliage often is noticeable from a distance of several miles.

Throughout the eastern two-thirds of Iowa, dead or dying oaks stand out prominently in many of the woodlands that border the highway. The northern part of the state appears to be most severely affected. In Pilot Knob State Park, a forested tract of 380 acres near Forest City, Iowa, the damage oak wilt can cause is illustrated most impressively. From the tower on Pilot Knob, well above tree-top level, large areas containing trees in all stages of the wilt disease can be seen in every direction. Against the dark green background of normal forest foliage, the brown and gold and tan of wilting oaks stand out in a crazy-quilt pattern. Intermingled are the bare and whitened trunks of oaks that died last year or the year before, for the bark loosens and drops quickly from trees killed by the oak wilt. Is it estimated that there are 8,000 to 10,000 wilt killed trees still standing in the park, and that at least 20 per cent of the still living oaks are infected with the disease. According to Harold Cole, Park Custodian, and Paul Hoffman of the Pathology Department, Iowa State College, approximately 1000 dead oak trees have been removed each year for the past seven years. Mr. Cole estimated that during the N. Y. A. program, prior to the war, more than 10,000 dead oaks were felled and removed. Many areas in the park that formerly supported a good stand of oak trees, now contain a dense, tangled, growth of aspen and briars. It seems exceedingly doubtful that the remaining oaks can be saved, due to the fact that the disease is distributed generally throughout the park area. Site conditions apparently have no influence on spread of the disease. Infected oaks may be seen on hill tops, slopes, and along creek banks and lake shores in equal abundance.

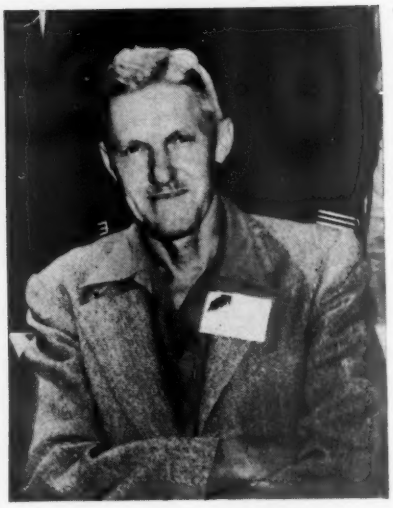
There are many infected and dead oaks in the vicinity of Fort Dodge, Iowa. The front lawn of a fine home in the residential section formerly was shaded by six large red oak trees. Now, all are dead except one, and in that one characteristic symptoms are developing. Large oaks in the lawn area of the Lutheran Hospital are dying, and in the wooded section west of the building there are many dead and dying trees. In one large farm yard a dozen oak trees are standing—all but two are dead

All through southern Wisconsin, eastern Iowa and northern Illinois hundreds

(Continued on page 22)

Why I Like The Rusty Fig

(Ficus rubiginosa)



By Ralph D. Cornell, F.A.S.L.A.,
Landscape Architect
Los Angeles, Calif.

All trees are likeable, some more than others, but I believe that every tree has its good points. When we express dislike for or objection to a tree it usually is because it does not behave as we would like to have it do under certain, unnatural conditions even though it may be entirely beautiful and very useful in just the right environment. Planters of trees commit a double error if, in the first place, they put trees where they do not belong and then, secondly, blame the tree for its unsuitability.

When asked why we like certain trees, I believe that most of us incline to judge them from the standpoint of the uses to which they can be put satisfactorily. The qualities which combine to make a tree satisfactory probably would include not only the general characteristics of appearance, size, foliage color, texture, mass silhouette and other aesthetic considerations, but also would include hardiness, pest and disease resistance, absence of unreasonable litter, freedom from undesirable root action and other comparable qualities. We like trees for their good points and we like them better when their objectionable qualities are reduced to the minimum. As with human friends, we prefer to work with those trees whose virtues are not offset, too much, by strong irritants.

The landscape architect thinks of plants as a partial means to the end result of his planning. The effects that he seeks are built, in part, by plant materials that may be used either as individual specimens or in massed groups. In either case it probably can be said, with reasonable safety, that richness of foliage color and texture, vigor of form and outline and general freedom from cultural problems all are highly desirable qualities. When I am asked to state why I like a certain tree, I choose to approach the question from my background of experience with trees in Southern California.

A splendid specimen of Ficus rubiginosa trained for street purposes on a street in Los Angeles, Calif.

(Photos courtesy the Author).

While our climate is classed as subtropical we do have moments when there is a chill in the air that is sufficient to discourage the frost-tender plants, perhaps even eliminate them for the time being. Factors of temperature and humidity may vary tremendously within short distances, so that all work and opinion must be tempered by knowledge of and experience with local conditions. To pick a likeable tree we also must

state the limit of conditions under which it will thrive. Comment must be qualified.

I particularly like one species of Ficus for the milder, coastal sections of our California region. It will not stand severe cold or extreme aridity but will survive occasional temperature drops well down into the lower twenties without permanent mutilation, if the cold period is of very short duration. The tree is Ficus rubiginosa, Rusty Fig. It develops into a vigorous, robust, upright tree with rich-green, glossy, evergreen foliage that is particularly free from pests or periods of disfiguration. Leaves are entire, of medium size, and dark in color. It will stand heavy soil, reasonably poor drainage and abundant water but will do well in light soils and survive considerable drought and general neglect. It grows to magnificent size and proportions and, therefore, should not be planted where space is cramped and inadequate. It has a slight tendency, characteristic of many of the Ficus, to develop buttressed roots and to heave the earth at the crown of the tree, which would be objectionable in some situations. For this reason it should be used advisedly and not planted where this possibility will cause trouble. But the rusty fig is relatively free from this tendency and only in an occasional case does it cause trouble under average growing conditions. It is a tree highly worthy of consideration when growing conditions are suitable to its use.

Foliage and fruit of the Rusty Fig.

How To Start a Power Saw

By Raymond E. Lee,

Arborist,
Ralph Synnestvedt & Associates
Glenview, Ill.

In the good old days, when our forefathers wanted to cut down a tree, they took their axe and saw in hand and simply cut it down. No fuss, no muss, no motors. But we, in our advanced state, have complicated life to such an extent that even this simple operation is impeded by gadgets and improvements. We are not content with the old methods. No. We have to invent power saws. And thereby hangs this tale.

It is my unhappy lot to be associated with a power saw. Not one of those cute round little devils used by carpenters, the ones that whine angrily, but can at best merely remove a finger or two. My power saw is a big, red, gasoline-driven model, with a three-foot multi-toothed chain. This nasty, noisy, heavy brute must be lugged about in a cloud of exhaust fumes and is capable of dismembering the careless operator. That is, after it is started.

The saw is started in the same way as is an outboard motor, and anyone who has been becalmed with a stubborn outboard knows what that means. One wraps a cord once or twice about the flywheel, and pulls vigorously. This is supposed to start the engine.

"To start the chain saw," the maker's directions say glibly, "open the gas valve, tickle the gas plunger and pull the starting cord. Two or three pulls should be enough." They should, eh? Not in my book. Nor are twenty or thirty. Let us stop to rest and read further in the instructions.

"If the motor is cold," they continue in slightly smaller print, "a little choke may be advisable." A lot of choke for the inventor of this so-called labor saving device sounds more advisable. But we choke and continue pulling. Nothing happens.

"It may occasionally be necessary to prime the engine with raw gas. An aperture will be noted on the left side of the block, where the gas may be introduced if necessary." I can think of some other things that could also be introduced—notably dynamite. But never say die. We introduce gas. Apparently the introduction is ignored, for the engine remains cold and silent although we have become quite warm and vocal.

"Some operators," mutter the directions in even smaller print, "prefer to start the machine at full compression; while others find it better to back off." I could find it better to back 'way off, and then disappear entirely. Discovering that we have been cranking at full compression, we decide to try the other method. So we "back off"; that is turn the fly wheel so that it will revolve easily when first pulled. Perhaps this is it. We give a lusty tug at the starting rope.

The fly wheel gives an even lustier tug in the opposite direction, snatching the rope from our hands along with patches of skin, leaving a jarred and burning sensation. This is called a backlash—and it hurts. But it doesn't start the saw.

Only a faint whisper from the manufacturer by this time. "Occasionally failure to start may be due to carbon in the spark gap. Clean the points and the machine should function." It should? Why not *will?* Where is the brazen self-confidence of the earlier directions? Do the makers sense defeat? Have they too tried and failed? It *should* start! The hell (or heck. Ed note) you say.

Now here is a peculiar fact. After you have exhausted the orthodox methods given by the makers, your chances of starting the machine are much better. I know one man whose last resort is to change plugs after every pull. He maintains that they get wet. How this happens he does not explain, but he usually gets it going. Another friend leans to the loose-part theory and tightens up everything loose he can find. He too can start it, although I defy anybody to unscrew the gas cap after he is finished. One direct actionist, all else failing, shakes the whole rig until its teeth rattle. And he can start it. Another power sawer I know painstakingly pours a little water into the firing chamber. Alcohol in the gas has its followers, as do many other methods, and they all work. Sooner or later the saw bursts into its sullen war chant. Except when I am the one starting it.

I have tried all the above dodges, plus a few of my own inventions, including prayer, passion and spitting in the gas tank. All to no avail. How then do I get it started?

Very easily. Since the saw is a two-man tool, there is always someone else handy. And as I am usually in charge of the job, I use the old army technique. I walk away from the machine and snap curtly over my shoulder to my assistant, "Start the saw."

And I don't come back till he does.

Trees...

The ABC's of 2, 4-D

By L. L. Coulter
The Dow Chemical Company

2,4-D Has become a familiar term to virtually everyone who has a weed problem. However, the more basic facts concerning the various forms of this chemical and what they are used for are not so generally understood. The term 2,4-D is commonly used to identify the organic acid 2,4-dichlorophenoxyacetic acid. This is a white crystalline material which is highly insoluble in water until it is properly processed into one of several types of formulations which are sold commercially. The more common forms of 2,4-D are the esters, sodium salts and amine salts.

Regardless of the formulation used the active ingredient is 2,4-D. This is usually expressed in terms of acid equivalent and the amount of this is usually indicated on the container label as the amount per gallon or similar unit.

The ester formulations are made by a chemical combination of 2,4-D and one of several alcohols such as methyl or isopropyl alcohol. This combination forms an ester which is soluble in certain oils and by adding an emulsifier to these oils a product which will emulsify in water is obtained. When an ester formulation of 2,4-D is added to water, the water takes on a white, milky appearance as a result of the emulsification of the oils. Presumably because of this additional oil and because of their ability to penetrate the waxy covering of the leaf, the ester formulations are particularly useful in the control of waxy leaved species and are used extensively for brush control. The esters now in commercial production are more volatile than the salt types and vapors escaping from open cans containing esters of 2,4-D or from areas sprayed with an ester may be hazardous to susceptible plants in adjacent areas.

When 2,4-D is mixed with an amine, such as triethanolamine, it forms what is frequently referred to as an amine salt, and this is highly soluble in water at most concentrations. Unlike the esters, the amine salts are not soluble in oils and are relatively nonvolatile. They are generally regarded as intermediate between the esters and sodium salts in activity. They are particularly adapted for crop spraying because of their high solubility necessary for low volume spraying and their greater selectivity on crops.

Public utilities are now killing mixed brush along their right-of-ways with a mixture of 2, 4-D and 2, 4, 5-T.

Unlike the esters and amines, the sodium and ammonium salts are both powders. This powder is not so water-soluble as the amine salts and does not lend itself to low volume spraying. The sodium and ammonium salts are considered to be the least active of the three types of 2,4-D and also the most selective.

2,4-D is a growth substance type of herbicide. It moves through the plant to the roots, stems and leaves where its lethal action gradually causes death to the entire plant. Plants affected by 2,4-D are characterized by a twisting of the stems and drooping of the leaves shortly following treatment. Leaves soon show some distortion. Ordinarily within two weeks, death to the plant is complete. Generally 2,4-D is most effective when applied to plants in a rapid state of growth. Plants treated under adverse conditions such as cold weather or extended drought will respond more slowly.

Weed control with 2,4-D has become an accepted practice in small grains, turf and roadside areas. Specific recommendations for the use of 2,4-D in these various situations may be obtained from experiment stations and reliable manufacturers.

DISCOVER SQUARE TREES IN PANAMA JUNGLE

There are square trees growing in the Panama jungles, according to a Memphis Dominican priest who has returned here from a vacation trip.

Father A. D. Frenay, OP., Ph. D., one of whose hobbies is trees, said the trunks have four flat sides and slightly rounder corners. The trunks were square all the way up, as far as he could see, even beyond the branches.

Although he has read every book he knows about trees, Father Frenay hesitated to give out his story after returning from Panama for fear that square trees might be a well-known freak he had just never heard about. So he wrote to Gilbert Grosvenor, head of the National Geographic Society, who replied that the society had no knowledge of the phenomenon.

Grosvenor referred the priest's query to the Bureau of Plant Industries of the U. S. Department of Agriculture. The bureau informed Father Frenay that it had never heard of square trees, either.

Father Frenay, a native of Germany who has been a Dominican priest 35 years, is stationed at St. Peter Parish here. For his 60th birthday this summer the Dominicans gave him a trip to Panama. He visited the canal, then decided to go into the interior to study trees.

Jammed with seven Indians into an ancient stagecoach straight out of the old West, he finally reached a little inn on the edge of the jungle in Cocle Province. There he met a man called "Jungle Jim," the inn's manager, who told him about the square trees. Father Frenay said:

"The square trees were about two feet on each of their four flat sides. The corners were slightly rounded. The bark looked pretty much like that of a beech tree.

"The leaves looked something like very small lilac leaves. The trunks were square all the way up, as far as I could see, even beyond the branches. The trees had lots of foliage. Nobody has given me any information about them."

The Arborists Clinic

"General Sherman" Picture Revealed as Phony

In looking thru the file for a cover picture these past twelve years we often stopped and gazed fondly at a picture of the "General Sherman" Big Tree. Finally on the May-June issue of this year we ran it. It turned out to be an interesting mistake as the following letters will disclose.

We are grateful to the U. S. Forest Service for the true picture of the General Sherman which appears on the cover of this issue.

Pack Forest,
La Grande, Washington
July 12, 1949

Mr. Edward H. Scanlon,
Editor Journal of American Arboriculture
Box 5607, Cleveland, Ohio

Dear Sir:

It was with interest that I noted your fine picture of a Sequoia entitled "General Sherman Tree"—world's largest tree—or something to that effect, (in your May-June issue of the Journal). Permit me to suggest that I believe the identity of that particular photograph must be incompletely known and the title incorrect. I am almost positive that the tree shown is not the "General Sherman" of world fame which stands in the Giant Forest of Sequoia National Park. The tree you show is most certainly a *Sequoia gigantea,* (or if you prefer the new name, *(Sequoiadendron giganteum).* However, the photograph, I would be willing to bet, was taken in either Calaveras (North Calaveras) Grove or in the Mariposa Grove of the Yosemite National Park. The attire of the ladies indicates a date of around the turn of the century or perhaps earlier. Your tree may still be a "Sherman" tree even so. In the publication "A Short Account of the Big Trees of California," appearing as Bulletin No. 28, U.S. D.A., Division of Forestry, G. Pinchot, Forester—1900, on page 14 there is a list of the living trees of the Calaveras Grove, which includes the "W. T. Sherman" tree, named in 1865.

Since I am somewhat of a "Californiac" and have had the Sequois as a sort of "hobby" for something over 20 years you will pardon me I hope for taking so much time on a relatively unimportant matter. If you can tell me, I would like to know the history of that photograph, and whether or not I am correct.

Sincerely yours
Philip G. Haddock,
Assistant Professor of Forestry
Pack Forest, (U. of Wash.)
La Grande, Washington.

July 29, 1949.

Mr. Philip G. Haddock,
Asst. Professor of Forestry,
Pack Forest, (Univ. of Washington)
La Grande, Washington.

Dear Professor Haddock:

Now that you remind me of it I am inclined to agree that the cover picture on the last issue of TREES was not the General Sherman tree of the Giant Forest.

The picture is a U. S. Forest Service pictre and the caption says it is the General Sherman tree. However, I do not recall, and I have been in the Giant Forest many times when working for the State Forestry Department, the large tree shown adjacent to the Sherman in this picture. While it has been fourteen years since last I visited the Giant Forest and many gallons of water have spilled over the dam in that time, my memory of that memorable scene may be slightly clouded, but I still do not recall that other large tree. What is your opinion.

Just to see if we can run this down a little further I shall write the Forest Service and ask what their record is in the matter. Inasmuch as your letter is interesting, may I have permission to reproduce it with the answer from the Forest Service.

With kindest regards,

Cordially yours,
TREES Magazine,
Edward H. Scanlon,
Editor.

July 29, 1949.

Mr. Lyle Watts, Chief Forester,
U. S. Forest Service,
Washington, D. C.

Dear Mr. Watts:

Some years ago I wrote the Forest Service for several pictures for possible use in this magzine. Among the pictures sent was one No. 38780 and titled, "The General Sherman Tree, Sequoia National Park."

I used this picture as a cover on the last issue of this publication and received a rather interesting letter from Professor Philip G. Haddock, Assistant Professor of Forestry, University of Washington, in which he questioned the title of the picture, that this tree is the General Sherman tree of the Giant Forest. Professor Haddock believes that the picture is of the W. T. Sherman tree in the Calaveras Grove as described by Gifford Pinchot in Bulletin No. 28, "A Short Account of the Big Trees of California."

Inasmuch as this is an interesting observation brought up by Professor Haddock and because he has aroused a doubt in my mind due to the fact that in my many visits to the Giant Forest, I do not recall another tree standing as close to the General Sherman as the one shown in the picture, I am wondering if it would be possible to run down the history of this picture for whatever it is worth. As you can see from the fashionable gowns worn by the ladies the picture was probably taken around 1900 and might make it a little difficult to run down. At any rate, it would be interesting to learn if Professor Haddock is correct.

With kindest best wishes,

Cordially yours,
TREES Magazine,
Edward H. Scanlon,
Editor.

Pack Forest
La Grande, Washington
August 1, 1949

Dear Mr. Scanlon:

I have your letter of July 29. Many thanks for your interest in my question about the Sequoia photograph. Yes, certainly, you have my permission to quote from my letter. I agree that the other Sequoia in the photo looks strange. In fact that was one of the chief reasons I felt the tree could not be THE General Sherman. I recall no other large Sequoias within several hundred feet of the Sherman—only a rather dense stand of other conifers—chiefly white fir. I will admit I am fallible too. It has been far too long since I was in that section of California, even, let alone the Giant Forest. I believe my last visit was almost as long ago as yours—1937 to this month!

Yours, in sympathy at our self imposed exile from the Sierra.

Sincerely,
Philip G. Haddock

August 3, 1949

Dear Mr. Scanlon:

We have your letter of July 29 asking about our photograph No. 38780, which was titled "The General Sherman Tree, Sequoia National Park".

Our records of this photo describe it as a photo of "General Grant, General Sherman, and the Four Guards—Mariposa Grove, Yosemite National Park". The picture is undated, but the negative number, as well as the ladies' dresses, would place it around 1900.

It certainly is not the General Sherman Tree of Giant Forest, as I remember it. I am enclosing a photo of that tree.

The mislabeling of No. 38780 must have been a clerical error in our photograph file. The similarity of the two photos may account for it. We are very sorry.

Sincerely,
Charles E. Randall
Div. of Information & Education

Mall 10-Pound Chain Saw

A new lightweight Tree Saw has been developed that will cut off branches up to 12 inches in diameter 15 feet above the ground. In addition, the saw will fell, buck and limb trees up to 24 inches in diameter, cut heavy piling and timbers when detached from pole and used as a hand power saw.

It is so easy to operate and so light in weight—only 10 pounds—that any adult person can use it successfully by simply

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plugging it into any 110-volt, 60 cycle or Direct Current light circuit. It can also be operated from a small 750-watt gasoline engine generator that can be picked up and carried about like a satchel.

Other models are available equipped with a 220-volt, 180 cycle, 3-phase motor, as well as 200-volt, 360 cycle, 3-phase motor with a total weight of 7½ pounds. The pneumatic model weighs only seven pounds complete.

Seen at Baltimore

Serious bunch of lads shown here at the N.S.T.C. demonstrations in Baltimore. Myron Macleod, from that little sheet "American City," Frank Lancaster, Davey Tree Expert Co.; Dr. Curtis May, U.S.D.A. Beltsville, Md.; Dr. J. C. Carter, Illinois giving Howard Ingerson of the John Bean Co., a big pitch on something.

This is it. Aren't we glad the two middle characters kept their hats on. Ole Anderson, Blume System Tree Experts; Jack Robinson, Hardie Mfg.; Jim Shafer, B. G. Pratt Co.; Whitey Dillon, Hardie Mfg. Co.

The hardest work they did all day—Mike Hartney, Beantown; Dick Walter, Maplewood, N. J.; Dave Poe (must be singing) Bala-Cynwyd, Bartlett Tree Expert Co.

PLAN YOUR SPRAYING PROGRAM Around...

ESTERON BRUSH KILLER, containing equal amounts of the isopropyl esters of 2,4-D and 245-T acid, controls woody and herbaceous plants including alder, birch, brambles, elm, hickory, osage orange and many other species. Assures satisfactory control of most troublesome species on the average right-of-way.

ESTERON 44 will give good control of sucker growth when applied directly to stubs and stumps to prevent resprouting. Also effective against woody brush and difficult-to-kill perennial weeds.

ESTERON 245 controls woody plants growing along roadsides and rights-of-way. Used alone or in conjunction with Esteron 44, Esteron 245 will control such resistant plants as brambles, osage orange, certain hawthorns and woody species including poison ivy.

SODIUM TCA 90% controls grasses such as Johnson, quack, Bermuda. Also kills annual grasses such as foxtail, chess and crab grass and promises effective control of prickly pear cactus and palmetto. At lower dosages, retards growth without killing, where a light grass cover is desired.

You will find it profitable to plan next season's spraying program around these outstanding developments of Dow research—Esteron Brush Killer, Esteron 44, Esteron 245 and Sodium TCA 90%. Used separately or in conjunction, they can help you maintain a right-of-way substantially free from weeds, woody growths and noxious grasses.

These effective products have been developed by Dow, major producer of result-getting weed killers—and *tested and proved* by Dow in cooperation with public utilities. They're easy to mix and apply—they're economical—and they show positive results.

Ask your dealer or write to Dow.

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WEED AND GRASS KILLERS • INSECTICIDES • FUNGICIDES
SEED PROTECTANT • PLANT GROWTH REGULATORS
GRAIN AND SOIL FUMIGANTS • WOOD PRESERVATIVE

The fair haired boys: Al Meserve, ex-pres. Nat. Arborist Ass'n; Charlie Irish, former pres. N.S.T.C.; Jim Walker, Newark, just mingling with the great.

Steve Clopper, who did such a nice job on the weather as Local Chairman for the Silver Anniversary of the N.S.T.C. seated with Mrs. Chas. Young, left, and Mrs. Clopper.

Frank Hanbury, Peoria; Ed Higgins, new veepee of the N.S.T.C., and Dr. Ernest N. Cory, University of Maryland, ex-pres. of N.S.T.C., pause for a pose.

Now here's one to draw to—five jokers—John Stashenko, Stamford arborist; Ed (big wind) Connell, Lawrence Aero-Mist; John Duffy, Hartney Tree Surgeons; Harry Turner, City Forester, East Orange; Carl Schiff, City Forester in the home of the "Bums" (Brooklyn in case you're not a baseballer).

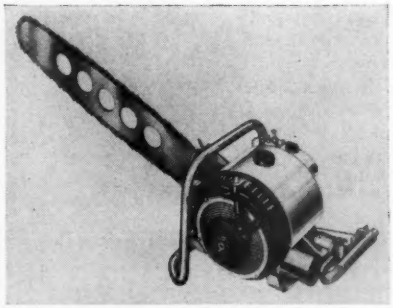
Looks like these boys were really interested in someone else at work. (Left rear) C. L. Halvorsen, Dalton, Mass.; Dr. Louie Chadwick, keeper of the books; "Wattaman" Bob Weakley, the Warren, Pa., shiek; Les Hebert, Weymouth, Mass., Tree Warden.

Young Steve Clopper to the left of front and center, Carl Fenner, Lansing City Forester, over his shoulder is "ersters" McCormick, Bean peddler and "Doc" Trantor the master-mind from Farquhar.

New 33-Pound Gas Chain Saw

A new line of one-man gasoline-driven chain saws, featuring a complete saw weighing only 33 pounds, is announced by the Homelite Corporation, Port Chester, New York.

Easiest handling, fastest cutting, lightest weight and lowest maintenance cost are the features claimed for these new chain saws . . . with an offer by the manufacturer to prove these claims by a free demonstration at any time.



The engine which powers these chain saws is the same Homelite two-cycle air-cooled single-cylinder gasoline engine used on Homelite pumps, generators and blowers. It is the result of over 25 years experience in building more than 275,000 gasoline engine-driven units. Minimum weight is achieved by using die cast magnesium and aluminum alloys for all major castings in both the engine and saw. Extremely compact design, with cylinder, magneto and drive housing mounting directly on the crankcase, keep the engine to a minimum size and gives the whole saw a smooth finished appearance. Ball and roller bearings are used throughout the engine and saw to give long trouble-free service.

The complete line of Homelite Gasoline Engine Chain Saws includes straight blade saws in 14″, 20″, 27″ and 30″ sizes, plus a non-binding bow saw. The complete saws weighs from 33 to 42 pounds including engine, blade and chain.

You Saw the Iron Age No. 125 at Baltimore. Own One.

John BEAN Shade Tree Equipment

Rotomist (above) is readily mounted on light truck. It gives you better shade tree protection; saves material; cuts manpower; makes light work of what were formerly tough jobs handling spray guns.

Effective Insect Pest Control

John Bean's complete line of specialized sprayers for shade tree work and for control of flies, mosquitoes and insect pests has met nation-wide approval. Whether your need is to make recreation areas pest-free, increase sanitary control, operate a community fly-control program, you'll find that a John Bean sprayer will do the job better and faster. Write for free Pest Control information.

Built to Fit All Your Needs

If you want fast operation, with thorough coverage and fatigue-free, one-man control, then the Bean *Rotomist* is the answer. The new 1949 *Rotomist* has many new design refinements and features that more than ever make *Rotomist* the best way to apply concentrates, dry dust or wet dust. Its aerodynamic design releases micron-sized spray particles that give complete coverage with a minimum of drift. It also eliminates deposit of spray material on cars or homes.

The operator has full visibility for efficient, easy operation with responsive hydraulic controls. Write for free Rotomist Catalog.

Whether your needs call for a conventional high pressure sprayer or a Rotomist concentrate applicator, you'll save time, money, material and maintenance cost with John Bean equipment.

The John Bean line includes models with outputs to 60 gallons per minute at pressures to 800 lbs. And, for hard-to-reach areas, back yards, etc., there are portable John Bean sprayers and concentrate applicators. Write for free, complete information on John Bean specialized shade tree and pest control equipment.

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The "White Oils"

Because of the wide current interest concerning "white oils" and their use with DDT emulsions in the Ohio Phloem necrosis - Dutch Elm Disease spray experiments last year we are issuing this brief special bulletin on these materials.

"White Oils" are products derived from crude petroleum and range from light to medium to heavy-bodied oils. They are produced by means of certain prescribed distillation processes, reinforced by special chemical treatment to remove a large percentage of the "unsaturated hydrocarbons." The "white oils" have been used widely for years for various purposes depending upon the degree of refinement. The most highly-refined, that is, those having the highest percentage of unsaturates removed and usually possessing the heaviest viscosity or body, are the "medicinal white oils" such as "Nujol" and "Russian Mineral Oil."

They are called "white oils" because the chemical treatment applied to remove the unsaturated compounds results in production of oils that are white, or nearly white (water white in color. For many years, "white oils" have been the basic ingredient in many of the well-known "safened summer oils."

It is the "unsaturated hydrocarbons" or "aromatic hydrocarbons" which, through oxidization, cause foliage burning. "White oils" generally have a high (95% or better) "UR," or "unsulfonated residue" which means that 95% or more of the "burning hydrocarbons" have been sulfonated out.

In the Ohio spray work, USDA workers found that "Acme' White Oil (product of Standard Oil of Indiana), when used at the approximate rate of 5 gallons white oil to 40 gallons of 5% DDT *emulsion* not only gave excellent control of leaf-hoppers (carrier of Phloem necrosis) and Scolytus beetles (carrier of Dutch Elm Disease) but also gave better than average control of mites and aphids for as long as 30 days.

According to the bulletin on the Ohio spraying issued recently and private information we have received, *no foliage damage of any kind was reported following the use of the "white oils" with DDT emulsion.*

The original intent of the Ohio experiments was the use of white oil to *retard* evaporation of the DDT emulsion. The mite-aphid control was a welcome surprise. It has been evident for some time that the weakness of the DDT emulsions was the too-rapid evaporation when spraying tall tress. When the white oils are added, this evaporation is appreciably checked with consequent better top-of-the-tree coverage.

The actual specifications of the "Acme" White Oil are:

Viscosity (Saybolt at 100) — 80-85 seconds. Distillation Range: Initial 596-F.

Unsulfontable Residue—96%. End Pt. 752-F.

Among Lawrence mist-sprayer operators using the "white oils" with DDT emulsions are: New York City Park Department; City of Mount Vernon, N. Y.; town of Stratford, Conn., and the Intra-State Tree Service, Stonington, Connecticut.

We understand that in addition to Standard of Indiana's "Acme" there are other "white oils" available in the East.

Special Bulletin No. 1
Edward A. Connell,
Stamford, Conn.

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New Farquhar Mist Sprayer Demonstrated at Shade Tree Conference

Delegates and visitors to the National Shade Tree Conference, held in Baltimore, August 24 and 25, viewed the first public demonstration of A. B. Farquhar Company's revolutionary new mist sprayer. Utilizing a new principle of mist spraying, the Farquhar Model 125 Sprayer, while a fraction of the size of previously designed equipment, produces a remarkably heavy fog, and is said to deliver 87% efficiency. The spray, which was found to do no damage to lower branches, easily reached tops of 90 foot trees. Because of its light weight construction, with resultant ease of operation, the manufacturer expects it to have wide acceptance among orchardists, arborists, farmers and owners of recreation centers, swimming pools, etc. The equipment was demonstrated at Leakin Park in Baltimore. Prominent entomologists and municipal officials were among those in attendance at the conference.

Construction of Mist Blower Equipment

By S. F. Potts

(Prepared by Connecticut Agricultural Experiment Station in Consultation with the Bureau of Entomology and Plant Quarantine)

The specific requirements of concentrate applicators will vary considerably with the size of machine and kind of growth and areas to be treated. We may roughly classify power machines into five different sizes. These different sizes would require engines of approximately 1½, 5, 12, 20 to 30, and 35 to 50 h. p., respectively. In addition to the gasoline engine driven outfits, a satisfactory 1/3 to 1/2 h. p. electric hand blower unit has been developed. Belt or direct drives have been successful, but right angle gear drives break down.

Fans: There are two general types of fans, the axial flow and centrifugal. Other so-called curved blade, squirrel-cage or multivane, Soroceo, and multiple stage fans are merely modifications of these two types. Fans should be steady and as free of noise as possible. No specific type of fan is best for all conditions. The principal factors determining type of fan are the air velocity required, size of machine, and whether the outfit is to be operated by one man or by two men. In general, the very small rigs utilize high velocity air to break up the spray by shearing action. Hence, they may use high velocity, low volume single or double stage fans. Usually the medium, to medium large rigs employ a combination of air velocity of 125 to 150 h. p. and hydraulic pressure of 40 to 150 p. s. i., through whorl nozzles to atomize the spray. Machines of this type have usually delivered 1,500 to 10,000 CFM of air by either of the two types of fans. Machines of very high volume and low velocity may require a small high velocity, low volume auxiliary blower to break up the spray and distribute it into the air stream from a big fan. For tall shade tree work air velocities of 120 to 150 m.p.h. are required in volumes of at least 8,000 CFM.

Outlets: The size, shape, and flexibility of the outlet is important. For the small machines that deliver high velocities a very flexible outlet and skilled operator are essential to obtain even coverage. The round outlet is the most efficient shape and is the type to use in shade tree and mosquito work where the fine spray must be driven to great distances. For the large, one-man operated orchard machines some air and power efficency must be sacrificed in order to effect sufficient spread close to the machine. This spread may be obtained with slot or fish tail outlets, with spoilers, or with multiple round ones. The flexibility of the outlet may determine which type of fan has the highest operational efficiency. For example, certain axial flow fans are more efficient in moving air straight away from the fan than the paddle or centrifugal type fans. However, to use axial flow fans in shade tree work it is necessary to expend some horse power in forcing a directional change in the air stream and in mounting for turntable rotation. On the other hand, some of the paddle or centrifugal fan cases and outlets can be rotated or easily swung up and down in a 180 to 230 degree arc with no loss of air efficiency. This feature covers about 90% of situations to be met in general operation, and a 90 degree (partial turn) turntable is sufficient to take care of other situations.

Turntable: The turntable should preferably be power driven as by hydraulic motor or by electric motor equipped with generator. The turntable should be provided with a good hand or foot brake.

Tanks and Agitators: Supply tanks should be of the proper size and have round or trough-shaped bottoms with mechanical agitator, for mixing any kind of material and for agitation. Bypass agitation is insufficient. Paddle type agitators should move slowly, sweep the bottom, and be provided with a brake. Tanks should have a wide mouth provided with 12 to 16 mesh removable strainer. The metal should be non-corrosive and any paints applied to it should be such as to withstand oil solvents and ordinary spray chemicals. Construction must enable operator to quickly and completely drain tank and spray line. Hence, a large, convenient tank drain should be located on the right side of the machine. Sometimes it is handy to be able to connect a hose at the drain plug connection so as to convey the waste solution away from sprayer to a spot selected for disposal. Moreover, it is important to avoid strainer wells in the tank's bottom and to be able to shut off the tank from the spray line at a point immediately below the tank. This is to prevent spray material from settling down into the spray line, strainers, and nozzles. It is helpful to have a quantity gauge for reading the volume of mixture in the tank. Ordinary graduated glass gauges are not very satisfactory on account of the tendency of dried spray films to obscure reading the markings and level of liquid on the glass tube. The installation of an auxiliary 1 to 3 gallon graduated flush tank is useful. This facilitates quick flushing of the spray line at the end of each spraying job or between change of mixtures. This small tank can be used as a material tank for small jobs or when treating individual small or large trees. Therefore, it should be connected to the main supply tank and provided with a shut-off between it and the supply tank.

Shut-off Valves: A quick acting lever operated shut-off valve must be conveniently located for the operator. He should be able to simultaneously use both hands for "finger touch" manipulation of outlet and liquid and dust shut-off levers.

Strainers: One large-surface area strainer of approximately 16 mesh should be located between tank and pump. A 20 mesh strainer of smaller size should be placed in the line between pump and nozzles.

Pumps: There are 3 general kinds of liquid pumps—plunger, centrifugal and gear. Plunger pumps can deliver any kind of mixture at any pressure. They are heavier, more expensive, and if kept in repair, are more durable than other types. Metal centrifugal pumps can deliver any kind of mixture at low pressures (below 40 p.s.i). Spur type gear pumps may deliver up to 150 lbs. pressure at 1200 to 2000 r.p.m. Ordinarily, abrasives like sulfur and cryolite will wear off the gears at such high speeds and pressures. However, at pressures of 2 to 15 lbs. and at speeds of 500 to 700 r.p.m., good gear pumps may last 1 to 3 years. They are light, easily repaired or replaced, and are not evry expensive. They are usually more satisfactory than centrifugal pumps. For the small machines a ¼" gear pump is big enough while the large rigs may require ⅜" gear or a 2 to 4 gallon per minute plunger pump. The pumping systems require oiling, a suitable liquid bypass arrangement, relief valve, and pressure gauge with diaphram that will keep the liquid from entering the gauge. Gear pumps without "built-in" pressure relief regulators are preferable for general use. To pump at specified low pressures a suitable relief valve and large capacity bypass is essential.

All washers, gaskets, and hose must be oil and solvent resistant. Leather washers and neoprene hose (as Weatherhead hose) are more resistant than natural rubber products. Disintegrating rubber parts in the line can plague the operator continuously by repeatedly plugging the nozzles.

(To be continued next issue)

NAA NEWS

By PAUL E. TILFORD, *Secretary*
Box 426, Wooster, Ohio

The National Arborist Association held a full-day meeting on Monday, August 22, at Baltimore previous to the opening of the 25th National Shade Tree Conference.

The meeting was called to order by President Albert W. Meserve who introduced R. D. Lowden, Needham, Massachusetts, as the first speaker. Mr. Lowden spoke on "Tree Cavity Treatments." After reviewing the early work on cavity treatments, some of the shortcomings and disadvantages of certain filling materials for cavities were discussed. The best filler Mr. Lowden has found, after considerable research, is a mixture of cement, asphalt emulsion and asbestos fiber. This mixture has held up well in cavities filled with it years ago, it is easy to work with and is non-injurious to the tree callous.

C. M. Blume, Blume Tree Experts, Houston, Texas, described the Blume Company's method of cost accounting. Costs are determined on every job, regardless of the job size. The net profit is also determined on each job.

A summary of Industry Statistics covering some phases of the tree-care industry was presented by Paul Tilford, Executive Secretary of the Association. The average charge for general tree work done on an hourly basis reported by 77 Association members in July of this year was $2.51 per man hour. The rate of pay for tree men varied considerably, depending on the section of the country. A majority of the companies who reported give their foremen and men of over one year of service some extra benefits in the form of one or more of the following: Vacation with pay, paid holidays, hospitalization, group insurance, bonus at year's end. Help is of much higher quality this year than one year ago and in most sections is more plentiful.

Most Association members have had good business this year, but in many instances it has been necessary to put more effort into selling. Following the war and until late last year more orders would come in by telephone than could usually be handled. Now it is necessary to get out and sell.

Hilliard L. Smith, Dow Chemical Company, Midland, Michigan, spoke on the latest developments in the control of brush by the use of chemicals, particularly with 2, 4-D and 2, 4, 5-T. The discussion brought forth considerable comment and questions, especially on the spraying or treatment of stumps or stubs to kill the roots and prevent sprouting.

John Duling, Muncie Tree Surgery Co., Muncie, Indiana, told of their experiences in using 2, 4-D and pointed out the necessity of using extreme care to avoid injury to plants not intended to be treated. Mr. Duling felt that, if a spray hose had once been used to apply 2, 4-D esters, it should never be used again for applying fungicides and insecticides to trees or other plants. With sufficient care, 2, 4-D can be cleaned out of a sprayer, but it is doubtful if the ester forms can be completely removed from spray hose.

The Association Committee on Safety Practices have been busy the past year in working out rules for the safe operation of the chain saw. Karl Kuemmerling, chairman of the Safety Committee, and some of his men demonstrated how safety should be taught to workmen. A model safety meeting was held and the type of discussion which is helpful in teaching safety was carried on by the panel. This committee now has what is probably the most complete and thorough safety rules for the chain saw that have ever been worked out. It is their plan to expand their work this coming year and finally safety rules will be developed for all phases of tree work.

"Operator's Experiences in Treating Elms with Oxyquinoline Benzoate for Dutch Elm Disease Control" was the subject of a talk by John Woodruff, Arborist for Oscar F. Warner, Landscape Forester, Waterbury, Connecticut. Mr. Woodruff pointed out that their experiences with oxyquinoline had been encouraging and that they had used this treatment considerably. The recommended method is sub-surface injection of the chemical in solution into the soil by use of a hydraulic sprayer. The solution is prepared by dissolving 13 ounces of the chemical in 100 gallons of water and 5 gallons of this solution is used for each inch of trunk diameter of the tree. The speaker stressed the point that the treatment is of no value in curing a tree, once external symptoms of the Dutch elm disease have developed. Oxyquinoline benzoate is used solely as a preventive treatment. At present the use of oxyquinoline benzoate and the application of DDT bark beetle sprays are the only measures showing any signs of promise in preventing the loss of elms by the Dutch elm disease.

H. N. Engledow, Mid-Western Tree Experts, Indianapolis, Indiana, gave some of the experiences of his company in spraying elms with DDT for bark beetle control. Storing the concentrated DDT formulations at low temperatures caused the DDT to precipitate out and

(Continued on page 21)

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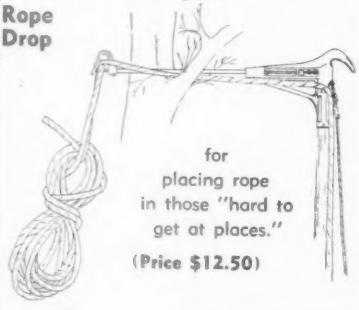

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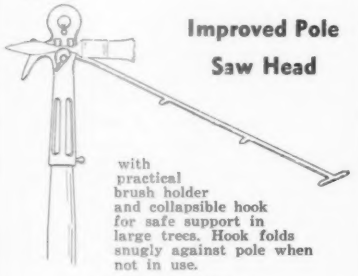

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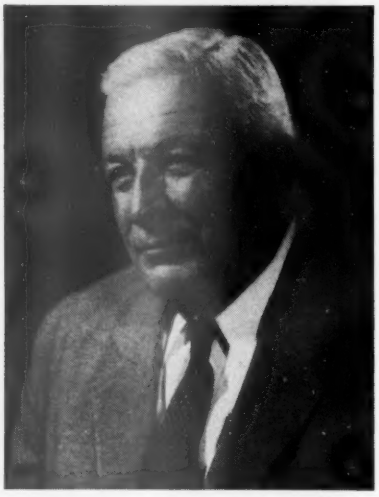
Baltimore, OK—Syracuse?

Dr. Ray R. Hirt, New York State College of Forestry, Syracuse, newly-elected president of the National Shade Tree Conference.



Edward W. Higgins, Frost & Higgins Co., Arlington, Mass., vice president National Shade Tree Conference.

A nice, decorous mob of tree men, and fraus, were greeted with perfect weather, a cloudless, windless demonstration day, a well arranged and well timed program, as the National Shade Tree Conference nobly rounded the quarter-century pole of its existence.

Thirty-one states, Wash., D. C. and Canada, contributed 490 delegates to guide the conference on its way to a golden anniversary. The Baltimore committee, aided no doubt by a bribe to the weatherman, rolled back tradition by turning on the ocean breezes to temper the normal late August "dog days" into a very wonderful six days. What happened after that we can't guarantee.

But, anyhow the 25th National Shade Tree Conference at Baltimore, Md., was okay. Steve Clopper, Sr. and Jr., Chas. Young, Lime Howe, Dr. A. E. Badertscher, John Loizeaux and the rest of the local committee turned in a fine piece of work.

We won't go into details on the program, that we shall leave for you to assimilate yourself when the proceedings of the meeting reach you a bit later. Elected president for the coming year was Dr. Ray R. Hirt, New York State College of Forestry, Syracuse. Vice-president is Edward W. Higgins, Frost and Higgins, Arlington, Mass. Dr. L. C. Chadwick, Ohio State University continues as secretary-treasurer, while Dr. Paul E. Tilford, National Arborist Association remains as Editor. The 1950 conference will be held in Syracuse.

New Dow 2, 4-D Plant Permits Major Price Reduction

Large-scale production from a new $2,000,000 2, 4-D plant and sharply increased sales have permitted lower prices effective today on 2, 4-D weed killers according to The Dow Chemical Company.

The new plant, built in the last year, was the firm's answer to the widespread acceptance won by 2, 4-D formulations in the control of weeds in grains, corn, cane, rice, and other crops, and by power companies and railroads to control weeds on their rights-of-way.

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Chain is high carbon electrically welded steel, heat-treated for great strength and long life and being flexible in all directions it will not kink. Load wheel and pinion shaft run in bronze bearings and mechanism is entirely enclosed. The disc type holding brake has a release latch for "free wheeling" for rapid adjustment of hook position.

Capacity In Gross Tons	Minimum Distance between Hooks	Reg. Pull in Ft.	Net Weight	Price Regular Size	Price Extra Length per Ft.
¾	8¾"	5	20 lbs.	$45.00	$ .85
1½	16¾"	5	32 lbs.	63.00	1.70

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NAA News

(Continued from page 18)

necessitated a good deal of stirring of the warmed solution to redissolve the DDT. After the spray was applied with a hydraulic sprayer some birds, particularly robins, died on several places where spraying was done. Bird kill was the greatest where the spray contaminated water which the birds drank. No bird killing followed the use of the mist blower, probably because of less spray drip. Mr. Engledow felt that the problems which arose were only tpical of what can be expected when a new practice is first put into operation on a fairly large scale. In general, he expressed the belief that the problems would be ironed out with experience and that DDT spraying woul prove an effective control against the Dutch elm disease in case of valuable trees.

Officers Elected

At the Association business meeting the following officers were elected for the coming year: President—C. L. Wachtel, Wauwatosa, Wis.; 1st Vice-president, Walter P. Morrow, Sewickley, Penn.; 2nd Vice-President, C. M. Blume, Houston, Texas; Secretary, Sidney McNeal, Tiffin, Ohio; Treasurer, Oscar F. Warner, Waterbury, Conn.; and Director for 3 years, Clyde C. Hartney, Dedham, Mass. Other members of the Board who carry over are: B. C. Deibel, Buechel, Ky., and H. N. Engledow, Indianapolis, Ind.

Fire Chief Does Real Job On Takedown

Bartonville, Ill.—Sam Ball, chief of Bartonville volunteer fire department, cut down a dead elm tree yesterday and gave the whole area quite a jolt.

The tree fell too soon and in the wrong direction. It brought down four power lines, each carrying 1300 volts.

The shocking results:

Damage to power lines estimated at $2000 by the Central Illinois Light Co.; an estimated $10,000 damages to neighboring homes and business establishments; burned-out electric fans, radios, toasters and other electrical appliances in Bartonville.

Electric power cut to the villages of Kingdom Mines and Mapleton, most of Bartonville and two coal mines; and water supply to the village of Broadmoor Heights shut off for eight hours; because of lack of power for the pumps.

To top it off, debris fell in front of the fire station and blocked the doors. There were no alarms, although the downed wires crackled and flamed.

Clipped by
Rudy Lohman

Our Tubular Frame Pole Saws now have new blades. These are strong and easy cutting. Try them and see how smoothly they cut..... **45c ea.**

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Authors and Books

The following books may be ordered from TREES Magazine, Box 5607, Cleveland, Ohio.

THE CARE AND REPAIR OF ORNAMENTAL TREES, by A. D. C. Le Sueur. Country Life Ltd., 2-10 Tavistock Street, Covent Garden, W. C. 2, London. 224 pgs. illus. 18 shillings.

The first edition of this title was published in 1934 and this second edition is ostensibly to bring the book up to date. We do not believe this has been done. At least not when measured by standards of arboricultural practice in the United States. We find no mention made of DDT, Fermate or other improved spray materials, nor of improved applicators such as the latest type hydraulic and mist sprays.

According to the author British tree men maintain that the use of a body line would impede one's ability to get around in the tree. We would like to see, even an ordinary American tree man, so equipped in a contest with the best British tree man. It would be no contest.

The book has little to offer. It is too bad the author did not make freer use of the literature available from the National Shade Tree Conference and other media of arboricultural practice.

* * * *

"TREES" YEARBOOK OF AGRICULTURE, 1949 U.S.D.A. U. S. Government Printing Office, Washington, D. C. 944 pgs. illus. $1.50.

There is a wealth of tree information contained in this voluminous tome. Of principal interest to the readers of TREES Magazine is the 100 pages given to shade trees, altho a much more comprehensive picture of the complexities of the fields of aboriculture and street tree management could have been included. Books of this nature are far reaching in their influence and it is feared that the poor practices that prevail in many cities and with some arborists will not be bettered by reading the sketchy information contained here.

The number and species of trees recommended for various parts of the country are very incomplete and in many cases very poor selections. Also it seems strange that the botanical names of species were not used with the common name. Why was the Jacaranda and Eucalyptus ficifolia, to mention only two, left out of the California list and the Norway maple (no good in Southern California) silver maple, Carolina poplar and California black walnut mentioned so prominently.

The forestry section is a much better and complete job and occupies the remaining 800 pages of the book.

* * * *

THE FORESTRY DIRECTORY compiled by Tom Gill and Ellen C. Dowling. The American Tree Association, Washington, D. C. 420 pgs.

This edition of The Forestry Directory is the sixth since 1924. It is amazing to note the number of conservation organizations there in this country. The data on each organization gives its president and other officers, purpose, date founded, approxmiate memberships, membership requirements, dues, and program and accomplishments.

Complete statistics on the forestry departments of each state are given in complete detail. Other important features are: Important Forestry Legislation; Forestry in the Department of the Interior; Forestry in the Department of Agriculture; Territorial Forestry; Forestry Education, all schools and their background are recorded; Forest Industries; Canadian Forestry and International Forestry.

On page 380 under the heading "Arborists" is listed the departments of the various states having licensing laws, with the commendable recommendation that persons requiring names of reliable specialists contact either the state agency, The National Shade Tree Conference, or the National Arborist Association.

Oak Wilt Menace

(Continued from page 7)

of isolated trees, or areas containing from one to a dozen, that are infected with oak wilt may be seen. There is no room for hope that the disease will be confined within its present boundaries.

The gravity of the situation can hardly be over-emphasized. The oak wilt disease, with its accelerated rate of spread of the last few years, is no longer a tree ailment restricted to a remote locality. It has escaped any restraining bonds that may have existed, and the entire hardwood belt, wherever oaks are found, may become its range. It is an ominous threat to every oak tree in the land.

To every American, oaks are important both as lumber producing trees and as ornamentals, and the oak wilt disease, as it threatens the continued existence of these trees, is a matter of national concern. The disease constitutes a problem that has become too large to be handled by state facilities alone; a research program operating under the proper Federal agencies and directed toward establishing control of the oak wilt disease is urgently needed.

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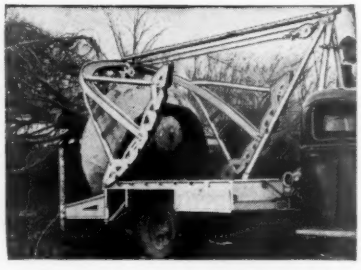

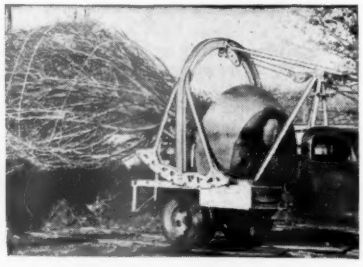

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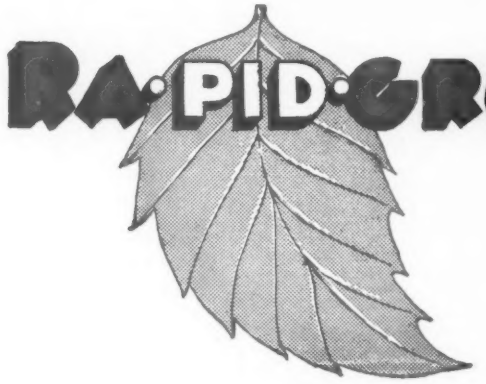

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